APPENDIX B

Boring Logs and Well Construction Diagrams

Source: IT, 1999 (Appendix B)

Appendix B
Boring Logs and Well Construction Diagrams

BORING NO. SB-POLA-101

COORDINATES: N. 575,992.31
E. 1,418,351.03

FIELD GEOLOGIST D. Britton
CHECKED BY D. Britton
APPROVED BY T. Ervin
TOTAL DEPTH 7.5 ft.

DATE BEGAN 10-28-96
DATE FINISHED 10-28-96
SURFACE ELEV. 8.77 ft.
CORE SIZE N/A

DEPTH IN FEET	SAMPLE TYPE & NO.	RECOVERY/DRIVE (in.)	BLOWS PER 6 IN.	DRILLING REMARKS	P.I.D. READING (ppm)	USCS	PROFILE	DESCRIPTION
0						ml		SILT; pale yellowish brown; dry; 80% silt; 20% gravels from regional parent rock; high organic content (roots from grasses). 0.3'
	HB-4071	14	20/23/38					SILTSTONE; moderate yellowish brown; slightly moist; non-plastic; 80% silt; 20% unweathered siltstone up to 1/2" in length; no odor; moderate reddish brown oxidation; highly weathered with distinct light brown oxidized zones.
	HB-4072	18	13/36/39	1" of slough in top tube.	N/A	bedrock		
	Grab							
5	HB-4073	12	36/147					Moisture increasing at 7'.
		6	100					Completely weathered SILTSTONE.
	HB-4074							TOTAL DEPTH 7.5 FEET
10								
15								
20								
25								
30								
35								

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
SAMPLING METHOD : California Modified Split Spoon Sampler
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	BJ	CHECKED BY	CFC 12-10-96	FILE NAME & DISK NUMBER	SPOLA101(HA26)
DATE	12/27/96	APPROVED BY	AGW 12-10-96		

INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. SB-POLA-102

COORDINATES: N. 575,947.27
E. 1,418,471.18

FIELD GEOLOGIST D. Britton
CHECKED BY D. Britton
APPROVED BY T. Ervin
TOTAL DEPTH 5 ft.

DATE BEGAN 10-28-96
DATE FINISHED 10-28-96
SURFACE ELEV. 8.28 ft.
CORE SIZE N/A

DEPTH IN FEET	SAMPLE TYPE & NO.	RECOVERY/DRIVE (in.)	BLOWS PER 6 IN.	DRILLING REMARKS	P.I.D. READING (ppm)	USCS	PROFILE	DESCRIPTION
0	HB-4065	14	28/42/78			fill		(FILL) Gravel; very fine sand; silt; pale yellowish brown. 1.0'
	No sample					bedrock		(BEDROCK) ARKOSIC SANDSTONE; dark yellowish orange; dry; cemented; weathered.
	Grab							
5								TOTAL DEPTH 5.0 FEET
10								
15								
20								
25								
30								
35								

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
SAMPLING METHOD : California Modified Split Spoon Sampler
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	BJ	CHECKED BY	CFC 12-10-99	FILE NAME & DISK NUMBER	SPOLA102(HA26)
DATE	12/27/96	APPROVED BY	AJS 12-10-99		

INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. SB-POLA-103

COORDINATES: N. 575,827.66
E. 1,418,424.26

FIELD GEOLOGIST D. Britton — DATE BEGAN 10-28-96
CHECKED BY D. Britton — DATE FINISHED 10-28-96
APPROVED BY T. Ervin — SURFACE ELEV. 14.06 ft.
TOTAL DEPTH 9.5 ft. — CORE SIZE N/A

DEPTH IN FEET	SAMPLE TYPE & NO.	RECOVERY/DRIVE (in.)	BLOWS PER 6 IN.	DRILLING REMARKS	P.I.D. READING (ppm)	USCS	PROFILE	DESCRIPTION
0	Grab					ml		SILT; dark yellowish orange; dry; 80% silt; 10% sand; 10% cemented unweathered SANDSTONE.
	HB-4067	14	28/42/40					1.5'
	HB-4068	18	15/17/19			bedrock		(BEDROCK) SANDSTONE; moderate olive brown; slightly moist; non-plastic.
								4.0'
5	Grab							
	HB-4069	12	37/25/47					SILTSTONE; moderate yellowish brown; slightly moist; non-plastic; 45% silt; 15% sand; 40% up to 1" dia. gravel.
		6	200		0.2-0.3	bedrock		
	No Sample							
10								TOTAL DEPTH 9.5 FEET
15								
20								
25								
30								
35								

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
SAMPLING METHOD : California Modified Split Spoon Sampler
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	BJ	CHECKED BY	CFC 12/9/99	FILE NAME & DISK NUMBER SPOLA103(HA26)
DATE	12-20-96	APPROVED BY	AWS 12/13/99	

INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. SB-POLA-104

COORDINATES: N. 575,787.06
E. 1,418,362.59

FIELD GEOLOGIST D. Britton
CHECKED BY D. Britton
APPROVED BY T. Ervin
TOTAL DEPTH 10.5 ft.

DATE BEGAN 10-28-96
DATE FINISHED 10-28-96
SURFACE ELEV. 13.59 ft.
CORE SIZE N/A

DEPTH IN FEET	SAMPLE TYPE & NO.	RECOVERY/DRIVE (in.)	BLOWS PER 6 IN.	DRILLING REMARKS	P.I.D. READING (ppm)	USCS	PROFILE	DESCRIPTION
0	Grab	4	50	Hard topsoil.	0.3	ml		(FILL) SILT; pale yellowish brown; 50% silt; 20% gravel; 30% very fine sand.
	HB-4061	8	50/110					
	Grab							5.0'
5	HB-4062	17	35/60/75		0.2	bedrock		(BEDROCK) ARKOSIC SANDSTONE; dark yellowish orange; dry; dense; moderately cemented; very fine to fine grained; slight moisture; few cemented nodules up to 1" in length.
	Grab							
	HB-4063	12	7/8/10					Moist at 7.5'.
	Grab							
10	HB-4064	12	35/80					Becomes dry at 9.5'.
								TOTAL DEPTH 10.5 FEET
15								
20								
25								
30								
35								

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
SAMPLING METHOD : California Modified Split Spoon Sampler
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	BJ	CHECKED BY	CFC 12/12/96	FILE NAME & DISK NUMBER SPOLA104(HA26)
DATE	12-20-96	APPROVED BY	AWS, 2-10-99	

INTERNATIONAL TECHNOLOGY CORPORATION

BORING NO. SB-POLA-118

COORDINATES: N. 575,889.43
E. 1,418,256.43

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 17 ft.

DATE BEGAN 10/10/96
DATE FINISHED 10/10/96
SURFACE ELEV. 12.65 ft.
CORE SIZE N/A

DEPTH IN FEET	SAMPLE TYPE & NO.	RECOVERY/DRIVE (in.)	BLOWS PER 6 IN.	DRILLING REMARKS	P.I.D. READING (ppm)	USCS	PROFILE	DESCRIPTION
0	Grab	9	18/50-3"	Slow drilling.	0.4	ch		(FILL) SILTY CLAY with GRAVEL; pale yellowish brown; dry; medium stiff; high plasticity; 20% gravel; abundant fine roots. 0.5'
	HB-4039	7	100-6"			sm		Well Graded SILTY SAND with GRAVEL; dark yellowish orange; dry; dense; 50% very fine to medium sand; 30% silt; 20% gravel to 2cm dia. 2.0'
5	Grab					bedrock		(BEDROCK) ARKOSIC SANDSTONE; dark yellowish orange; dry; very dense; weakly-cemented; weathered; very fine-to fine-grained. Grayish orange; slightly weathered; locally well-cemented; dry to slightly moist.
		3	50-3"					
10	Not Sampled			Very hard drilling.				
	Grab							
15								TOTAL DEPTH 17.0 FEET
								Note: Borehole grouted to surface.
20								
25								
30								
35								

DRILLER : Mark Nelson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY	CFC 12-10-99	FILE NAME & DISK NUMBER	POLA-118(HA26)
DATE	12-20-96	APPROVED BY	Hed 12-10-99		

INTERNATIONAL TECHNOLOGY CORPORATION

TABLE B2-1
POL AREA MONITORING WELL CONSTRUCTION DETAILS
HAMILTON AAF-BRAC
PROJECT #762538

WELL NO.	DATE COMPLETED	TOTAL DRILLED DEPTH (FT. BGS)	TOTAL WELL DEPTH (FT. BGS)	BOREHOLE DIAMETER (IN.)	SCREEN INTERVAL (FT.)	FILTER PACK INTERVAL (FT.)	BENTONITE SEAL INTERVAL (FT.)	GROUT SEAL INTERVAL (FT.)	PVC STICKUP (FT.)	STEEL MONUMENT STICKUP (FT.)
MW-POLA-117A	10/18/96	17.6	15	10.0	5.0-15.0	4.0-17.6	2.0-4.0	0-2.0	3.2	3.1
MW-POLA-117B	10/19/97	28	26	10.0	16.0-26.0	14.0-28.0	12.0-14.0	0-12.0	2.1	2.4
MW-POLA-118	10/24/97	16.4	15	10.0	5.0-15.0	4.0-16.4	2.0-4.0	0-2.0	2.1	2.6
MW-POLA-119	10/11/97	17	14.4	12.0	4.4-14.4	4.0-17.0	2.0-4.0	0-2.0	2.2	3.0
MW-POLA-120	1/30/97	31.8	30.66	8.63	15.0-30.0	14.0-31.8	12.0-14.0	0-12.0	2.9	3.6
MW-POLA-121	1/31/97	33.6	32.67	8.63	7.0-32.0	6.0-33.6	3.0-6.0	0-3.0	2.4	3.4

Checked By: LKC 6/3/97

Approved By: CFC 6/4/97

APPENDIX B2: MONITORING WELL LOGS, COREHOLE LOGS, AND CONSTRUCTION DIAGRAMS

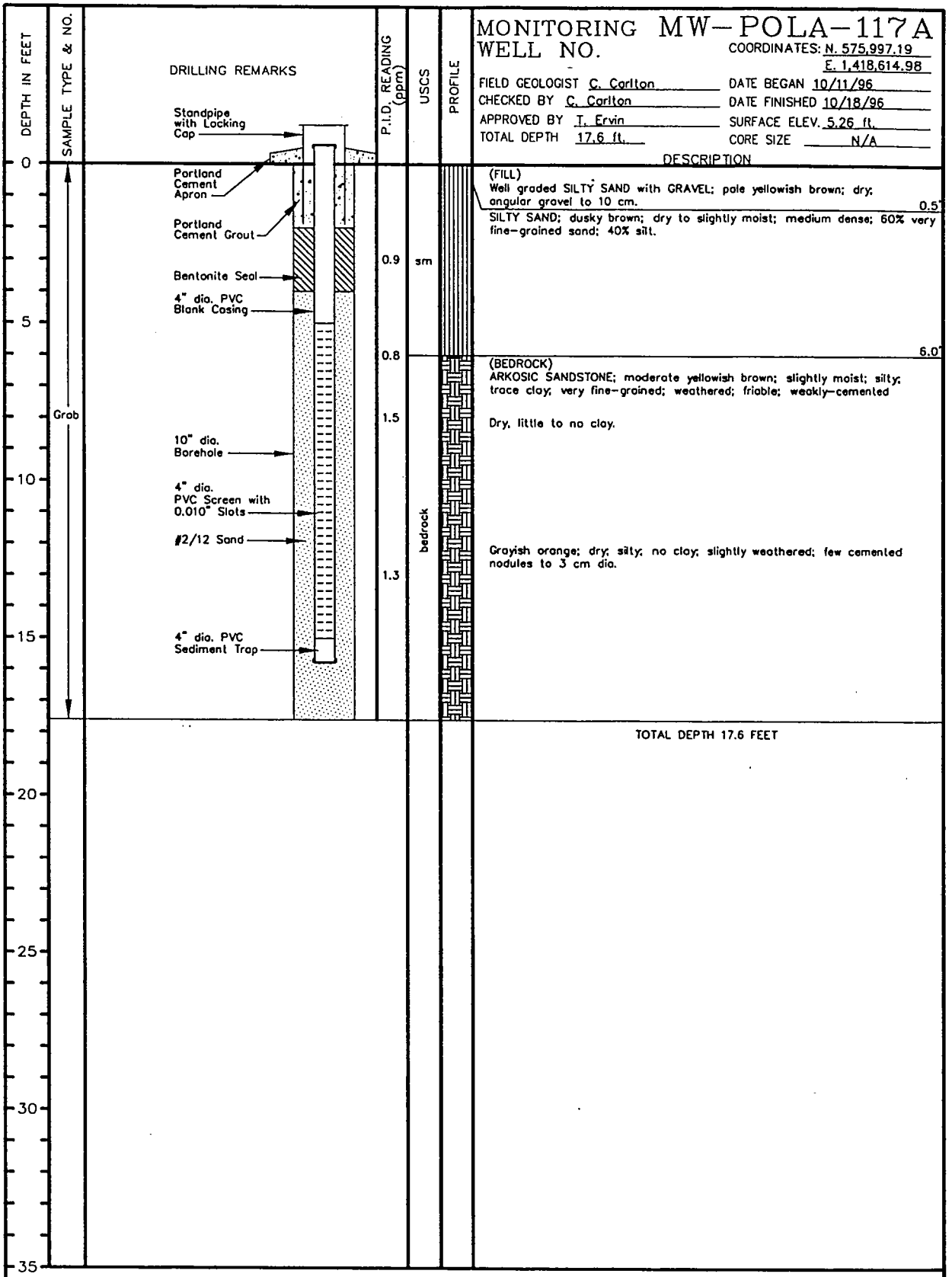
Well Number	Log/Diagram
MW-POLA-117A	Monitoring Well Log
MW-POLA-117B	Monitoring Well Log - Abandoned
MW-POLA-117B	Monitoring Well Log - Redrill
MW-POLA-118	Monitoring Well Log - Redrill (SB-POLA-118 was abandoned)
MW-POLA-119	Monitoring Well Log
MW-POLA-120	Corehole Log, Well Construction Diagram
MW-POLA-121	Corehole Log, Well Construction Diagram

MONITORING WELL NO. MW-POLA-117A

COORDINATES: N. 575,997.19
E. 1,418,614.98

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 17.6 ft.

DATE BEGAN 10/11/96
DATE FINISHED 10/18/96
SURFACE ELEV. 5.26 ft.
CORE SIZE N/A



DRILLER : Mark Nelson/Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY	C/E 12/10/99	FILE NAME & DISK NUMBER	POLA117A(HA25)
DATE	12-23-96	APPROVED BY	AWS 12/10-99		

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL NO. (Abandoned) **MW-POLA-117B**

COORDINATES: N. N/A E. N/A

FIELD GEOLOGIST C. Carlton | DATE BEGAN 10/11/96

CHECKED BY C. Carlton | DATE FINISHED 10/11/96

APPROVED BY T. Ervin | SURFACE ELEV. N/A

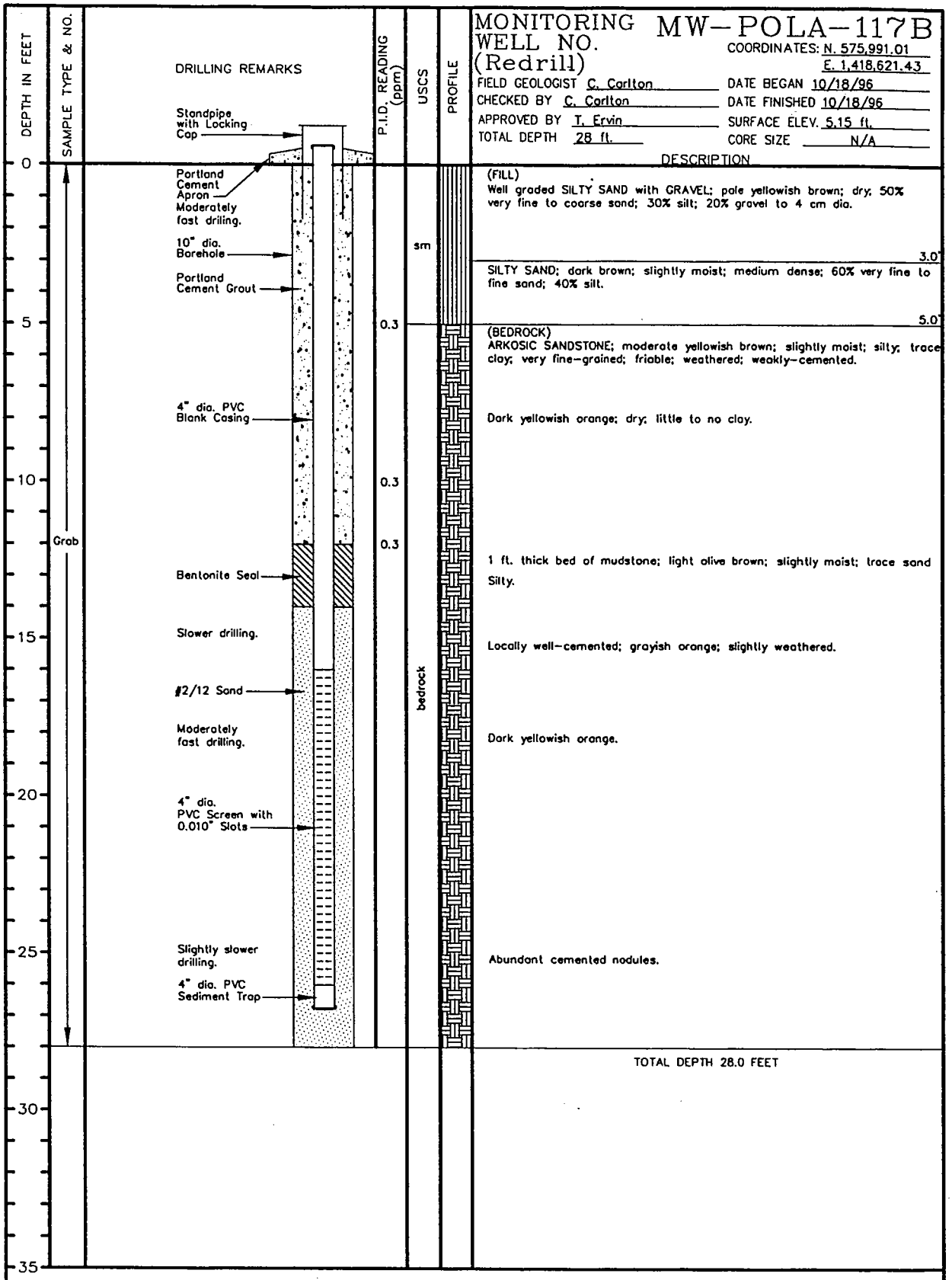
TOTAL DEPTH 30 ft. | CORE SIZE N/A

DEPTH IN FEET	SAMPLE TYPE & NO.	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0					(FILL) Well graded SILTY SAND with GRAVEL; pale yellowish brown; dry; 50% very fine to coarse sand; 35% silt; 15% angular gravel and rocks.
					2.0'
			sm		SILTY SAND; dusky brown; slightly moist; medium dense; 60% very fine to fine sand; 40% silt.
5					
		Moderately fast drilling.			6.0'
			bedrock		(BEDROCK) ARKOSIC SANDSTONE; moderate yellowish brown; slightly moist; silty; trace clay; very fine-grained; friable; weathered; weakly-cemented.
10					Dark yellowish orange.
					Grayish orange; dry; silty; no clay; slightly weathered; few cemented nodules 2 cm dia.
	Grab				
15					
					Dark yellowish orange.
20					
					Abundant cemented nodules to 22 ft.; nodules are hard; calcite-cemented; dark greenish gray; quartzo-feldspathic with minor mica.
25					
					Abundant cemented nodules to 29 ft.
30					TOTAL DEPTH 30.0 FEET
					Note: Borehole was grouted to surface.
35					

DRILLER : Mark Nelson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY	cfc 12/10/96	FILE NAME & DISK NUMBER MW-117B(HA26)
DATE	12-20-96	APPROVED BY	RWS 12-12-96	

INTERNATIONAL TECHNOLOGY CORPORATION



MONITORING WELL NO. (Redrill) MW-POLA-117B

COORDINATES: N. 575,991.01 E. 1,418,621.43

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 28 ft.

DATE BEGAN 10/18/96
DATE FINISHED 10/18/96
SURFACE ELEV. 5.15 ft.
CORE SIZE N/A

DESCRIPTION

(FILL)
Well graded SILTY SAND with GRAVEL; pale yellowish brown; dry; 50% very fine to coarse sand; 30% silt; 20% gravel to 4 cm dia.

3.0'

SILTY SAND; dark brown; slightly moist; medium dense; 60% very fine to fine sand; 40% silt.

5.0'

(BEDROCK)
ARKOSIC SANDSTONE; moderate yellowish brown; slightly moist; silty; trace clay; very fine-grained; friable; weathered; weakly-cemented.

Dark yellowish orange; dry; little to no clay.

1 ft. thick bed of mudstone; light olive brown; slightly moist; trace sand Silty.

Locally well-cemented; grayish orange; slightly weathered.

Dark yellowish orange.

Abundant cemented nodules.

TOTAL DEPTH 28.0 FEET

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY	CC 12-10-96
DATE	12-20-96	APPROVED BY	AWS 12/10/96

FILE NAME & DISK NUMBER POLA117B(HA25)

INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL NO. (Redrill) **MW-POLA-118**

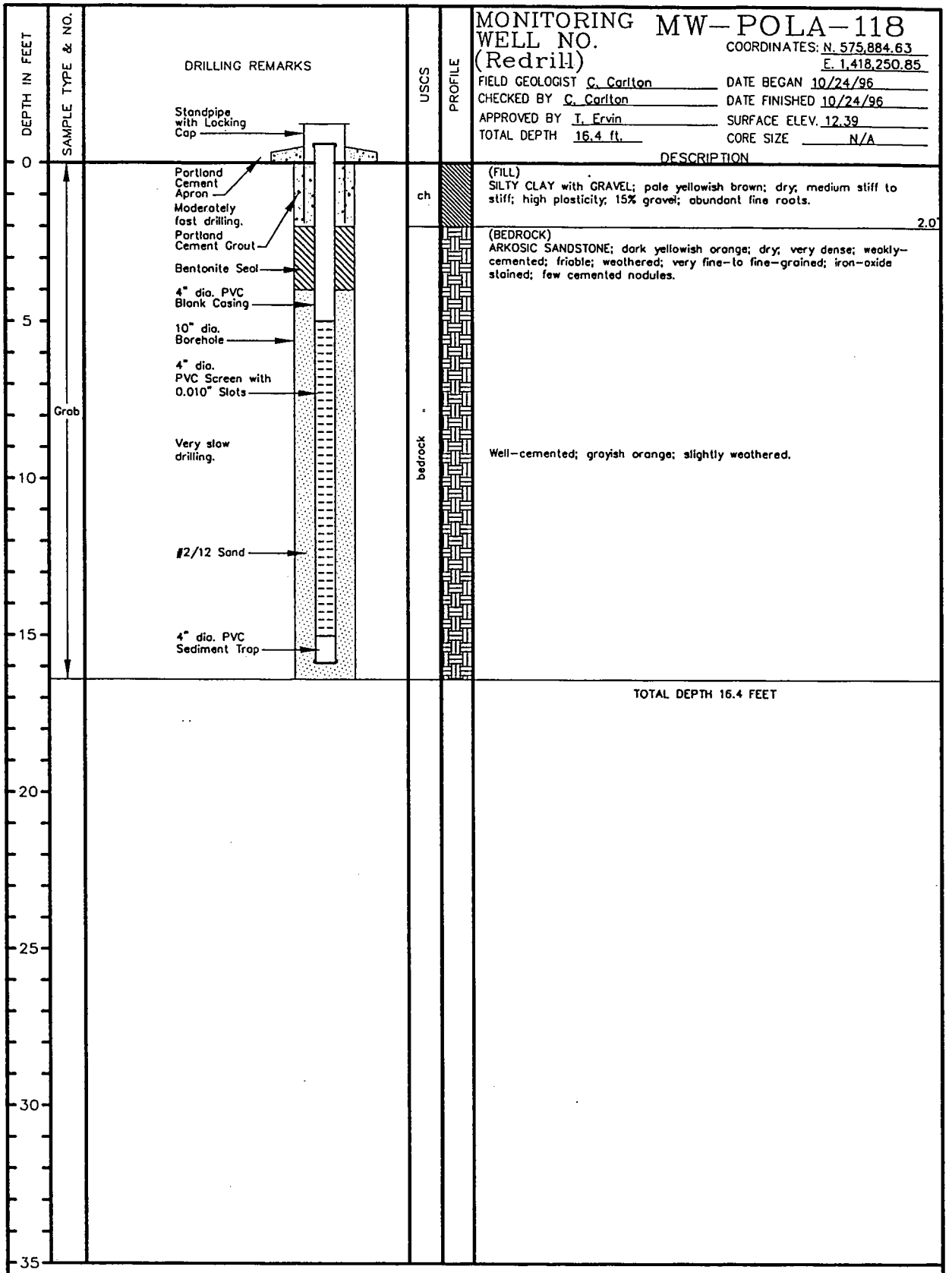
COORDINATES: N. 575,884.63 E. 1,418,250.85

FIELD GEOLOGIST C. Carlton — DATE BEGAN 10/24/96

CHECKED BY C. Carlton — DATE FINISHED 10/24/96

APPROVED BY T. Ervin — SURFACE ELEV. 12.39

TOTAL DEPTH 16.4 ft. — CORE SIZE N/A



DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY		FILE NAME & DISK NUMBER POLA118R(HA25)
DATE	12-23-96	APPROVED BY		

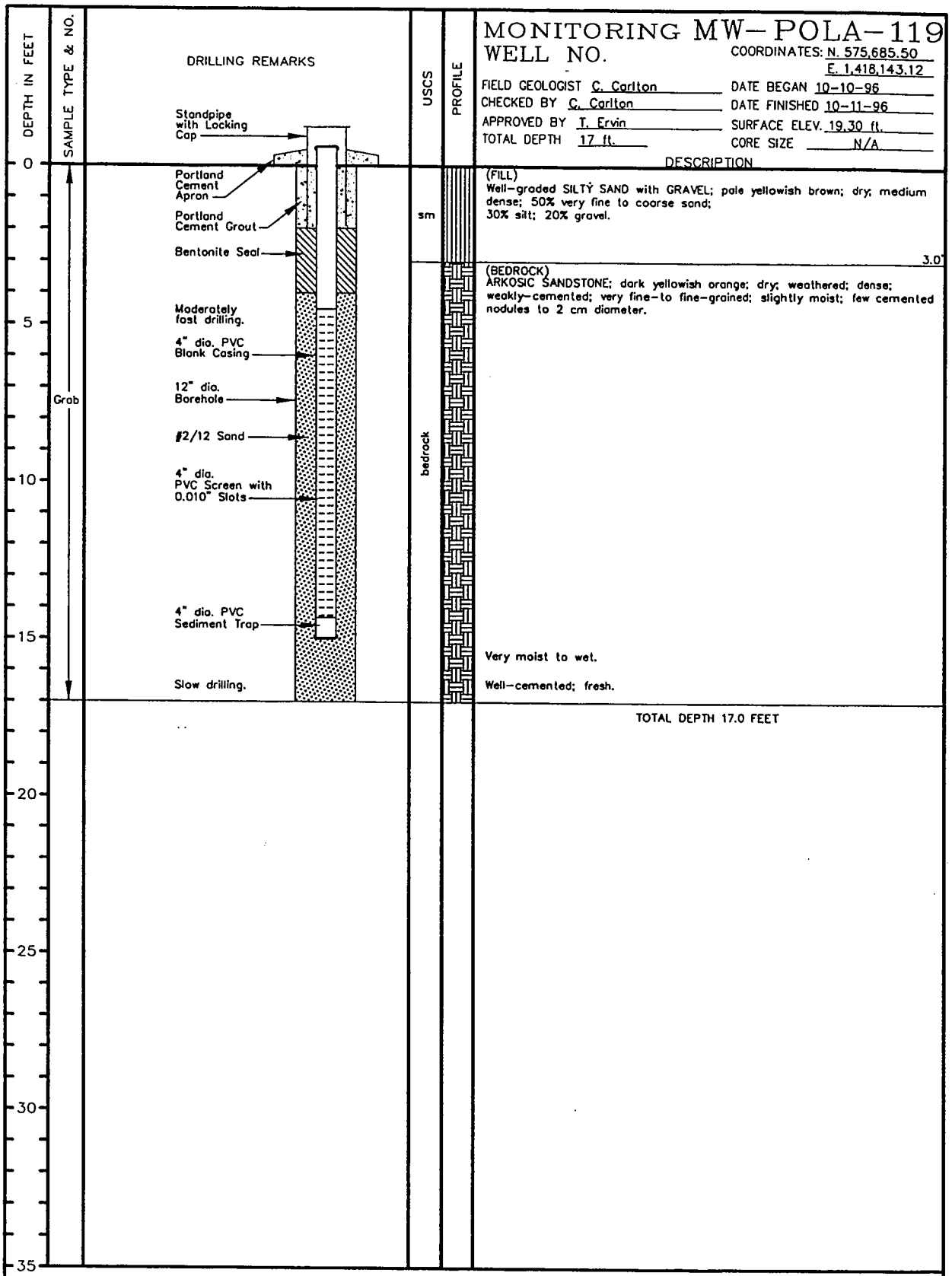
INTERNATIONAL TECHNOLOGY CORPORATION

MONITORING WELL NO. MW-POLA-119

COORDINATES: N. 575,685.50
E. 1,418,143.12

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 17 ft.

DATE BEGAN 10-10-96
DATE FINISHED 10-11-96
SURFACE ELEV. 19.30 ft.
CORE SIZE N/A



DESCRIPTION

(FILL)
Well-graded SILTY SAND with GRAVEL; pale yellowish brown; dry; medium dense; 50% very fine to coarse sand; 30% silt; 20% gravel.

3.0'

(BEDROCK)
ARKOSIC SANDSTONE; dark yellowish orange; dry; weathered; dense; weakly-cemented; very fine-to fine-grained; slightly moist; few cemented nodules to 2 cm diameter.

Very moist to wet.

Well-cemented; fresh.

TOTAL DEPTH 17.0 FEET

DRILLER : Mark Nelson
DRILLING CO. : SES Incorporated
DRILLING METHOD : Hollow Stem Auger
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	BJ	CHECKED BY	CK 12/10/96	FILE NAME & DISK NUMBER MPOLA119(HA23)
DATE	12/27/96	APPROVED BY	AVS 12/12/96	

INTERNATIONAL TECHNOLOGY CORPORATION

COREHOLE NO. MW-POLA-120

COORDINATES: N. N/A
E. N/A

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 40 ft.

DATE BEGAN 11/4/96
DATE FINISHED 11/13/96
SURFACE ELEV. N/A
CORE SIZE 3"(Run 1),2-1/4"
DESCRIPTION (Runs 2-5),1.9"(Runs 6-26)

DEPTH IN FEET	RUN NUMBER	RECOVERY/DRIVE (in.)	% RECOVERY	% RQD	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0	1	9	25	0	Moderately fast drilling (auger).	sm		(FILL) SILTY SAND with GRAVEL; moderate yellowish brown; dry to slightly moist; loose; abundant organic matter; angular fragments of yellowish gray very fine-grained sandstone in a light brown iron-oxide matrix.
	2	9	38	0				4.0' (BEDROCK) ARKOSIC SANDSTONE; dark yellowish orange; very fine-grained; weathered.
5	3	18	30	0				Highly weathered, fractured 3" interval; clay-filled.
10	4	18	75	56				
	5	18	75	56				
	6	12	67	N/A	Hard drilling at 14 ft. NX coring from 14-40 ft. Driller injected water. Note: no RQD for 1.9" core.	bedrock		Massive; medium light gray; very fine-grained; fresh; ~40% quartz; ~40% feldspar; 10% mafics; well-cemented; numerous discontinuous calcite veins 1-2 mm wide; few moderate yellowish brown iron-oxide stained zones surrounding < 1mm wide, iron-oxide/calcite-filled fractures; poorly-defined mafic mineral laminations. Veins and fractures are high angle (>45°).
15	7	14	100					
	8	19	86					Numerous high-angle to vertical cross-cutting calcite veins; white.
	9	17	94					Two 1mm thick fractures; quartz-and chlorite-filled with slickenside lineations; no evidence of saturation.
20	10	4	100					
	11	17	100					
	12	18	100					
	13	5	56					Iron-oxide stained fracture; ~1 mm wide; partially filled with iron-oxide; approximately 45° dip.
	14	6	100					Iron-oxide stained and partially filled fractures.
25	15	20	100					Iron-oxide stained and partially filled fracture; near horizontal; uneven.
	16	31	100					
	17	5	100					Shale interbed; 2 mm thick; medium dark gray; 20° dip.
30	18	12	100					
	19	11	100					
	20	11	100					Numerous subvertical calcite veins to 33 ft.; white and gray. 2 cm thick dark gray shale interbed at 32.3 ft. Shale fragments incorporated into calcite veins.
	21	24	100					
35	22	15	100					

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : 0-14': Dry Coring through 8" H.S.A.; 14'-40': 3" O.D. NX Coring;
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY	cfg 12-30-96	FILE NAME & DISK NUMBER MPOLA120(HA25)
DATE	12/30/96	APPROVED BY	[illegible]	

INTERNATIONAL TECHNOLOGY CORPORATION

COREHOLE NO. MW-POLA-120

COORDINATES: N. N/A
E. N/A

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 40 ft.

DATE BEGAN 11/4/96
DATE FINISHED 11/13/96
SURFACE ELEV. N/A
CORE SIZE 3"(Run 1),2-1/4" (Runs 2-5),1.9"(Runs 6-26)

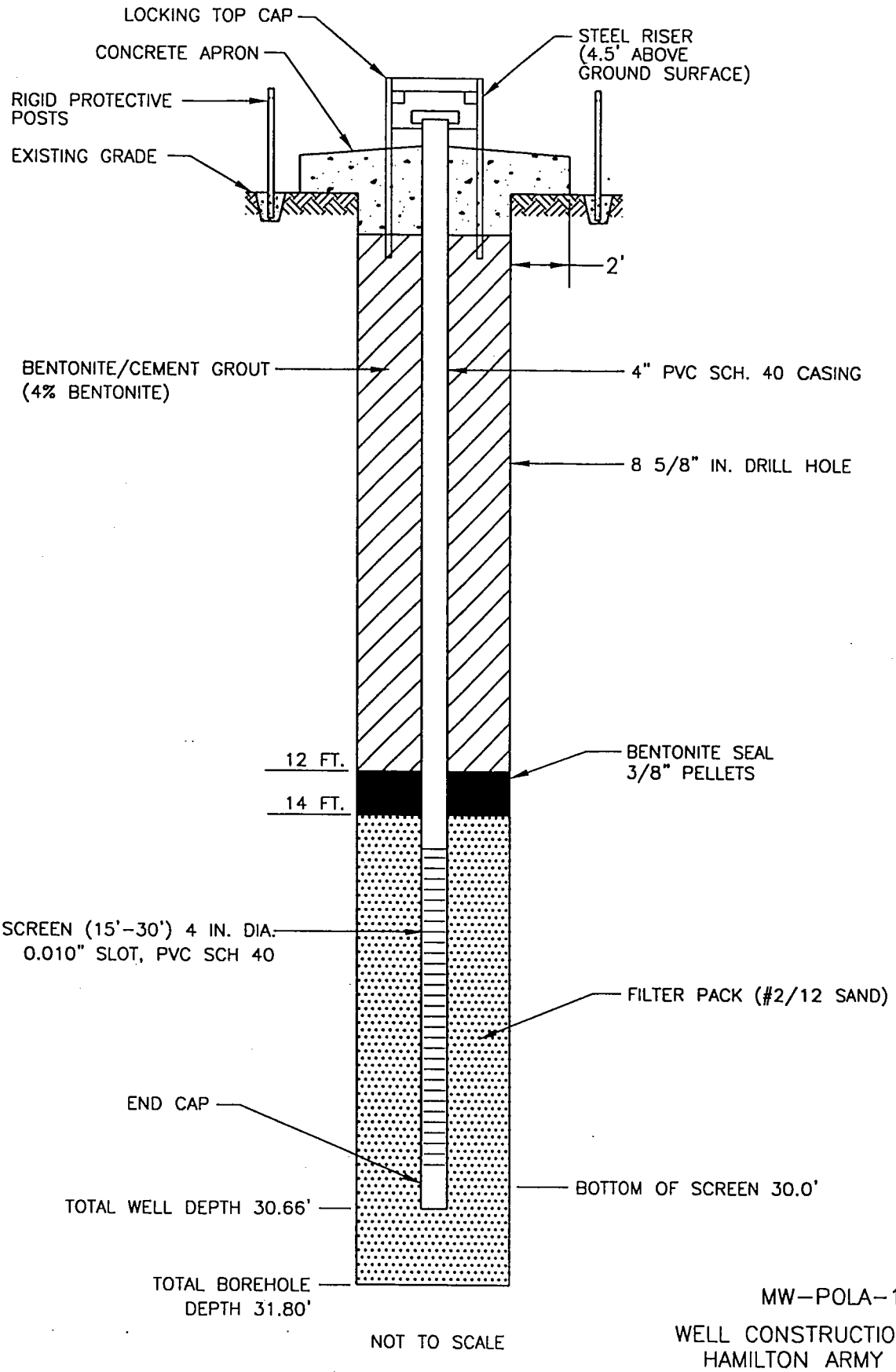
DEPTH IN FEET	RUN NUMBER	RECOVERY/DRIVE (in.)	% RECOVERY	% RQD	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
35	23	13	100	N/A	Runs 25 and 26: Drilling speed increased.	bedrock		Shale lamination, dip ~20°. Calcite veining along bedding plane and subsequent near-vertical veining; several veins include light bluish mineralization.
	24	11	100					
	25	20	100					Increasing density of erratic calcite veins. Some fractures may be only partially filled (core from 38 ft. to 40 ft. is broken).
40	26	13	100					TOTAL DEPTH 40.0 FEET
45								
50								
55								
60								
65								
70								

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : 0-14': Dry Coring through 8" H.S.A.; 14'-40': 3" O.D. NX Coring;
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY	clk 12/10/96	FILE NAME & DISK NUMBER MPOLA120(HA25)
DATE	12/30/96	APPROVED BY	12-10-96	

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY	CHECKED BY	DRAWING NUMBER
J.KYLE 6-4-97	APPROVED BY	762538-A197



NOT TO SCALE

MW-POLA-120

WELL CONSTRUCTION DIAGRAM
HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA
PREPARED FOR
USACE, SACRAMENTO DISTRICT

INTERNATIONAL TECHNOLOGY CORPORATION

POL-DWC2

COREHOLE NO. MW-POLA-121

COORDINATES: N. N/A
E. N/A

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 40 ft.

DATE BEGAN 11/18/96
DATE FINISHED 11/21/96
SURFACE ELEV. N/A
CORE SIZE 1.9"

DEPTH IN FEET	RUN NUMBER	RECOVERY/DRIVE (in.)	% RECOVERY	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
0	NO CORING	N/A	N/A	Auger drilling.	sw		(FILL) Well graded GRAVELLY SAND with SILT; moderate yellowish brown; slightly moist to dry; 50% very fine to coarse sand; 30% gravel and angular rocks; 20% silt; trace clay.
5				Slower drilling.			
	1	4	8	NX coring with water injection.			
	2	0	0				
10	3	2	11				
	4	10	56				12.5'
	5	0	0		bedrock		(BEDROCK) ARKOSIC SANDSTONE; medium gray; very fine-grained; massive; fresh; indurated; calcite-cemented; few partially iron-oxide stained fractures; ~20° to 45° dip.
	6	0	0				
15	7	12	92	PID = 0.4ppm			Medium dark gray to 16' with abundant iron-oxide filled fractures. Run 7: Core is broken; one piece has a partially open fracture (<1 mm) with iron-oxide staining.
	8	1	9				
	9	6	100				Numerous subvertical calcite-filled fractures to 20'; <1-2 mm wide.
	10	26	100				
20	11	29	97	PID = 0.3ppm PID = 0.2ppm			Fining-upward sequence with shale intraclasts.
	12	8	100				
	13	13	81				Shale lamination; black; approximately 0.5 cm thick; dip ~30°.
25	14	24	100				
	15	14	100				Shale lamination; approximately 0.3 cm thick. Fracture <1mm wide; black to dusky brown coating (hydrocarbon?); ~20° dip. Calcite-filled fracture; subvertical; up to 1 cm wide; several generations of filling; few discontinuous pores.
	16	27	90				
30	17	28	100	Slightly faster coring.			Very fine-to medium-grained.
	18	33	92				
35							

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : 0-5';8" H.S.A., No Coring; 5'-40';3" O.D. NX Coring
PROJECT NAME : Hamilton BRAC RI/FS
LOCATION : Hamilton Army Airfield
PROJECT NO. : 762538

DRAWN BY	T.R.S.	CHECKED BY		FILE NAME & DISK NUMBER MPOLA121(HA25)
DATE	12-30-96	APPROVED BY		

INTERNATIONAL TECHNOLOGY CORPORATION

COREHOLE NO. MW-POLA-121

COORDINATES: N. N/A
E. N/A

FIELD GEOLOGIST C. Carlton
CHECKED BY C. Carlton
APPROVED BY T. Ervin
TOTAL DEPTH 40 ft.

DATE BEGAN 11/18/96
DATE FINISHED 11/21/96
SURFACE ELEV. N/A
CORE SIZE 1.9"

DEPTH IN FEET	RUN NUMBER	RECOVERY/DRIVE (in.)	% RECOVERY	DRILLING REMARKS	USCS	PROFILE	DESCRIPTION
35	19	10	28		bedrock		Same as above..
	20	19	79				
40							TOTAL DEPTH 40.0 FEET
45							
50							
55							
60							
65							
70							

DRILLER : Rick Williamson
DRILLING CO. : SES Incorporated
DRILLING METHOD : 0-5';8" H.S.A., No Coring; 5'-40';3" O.D. NX Coring
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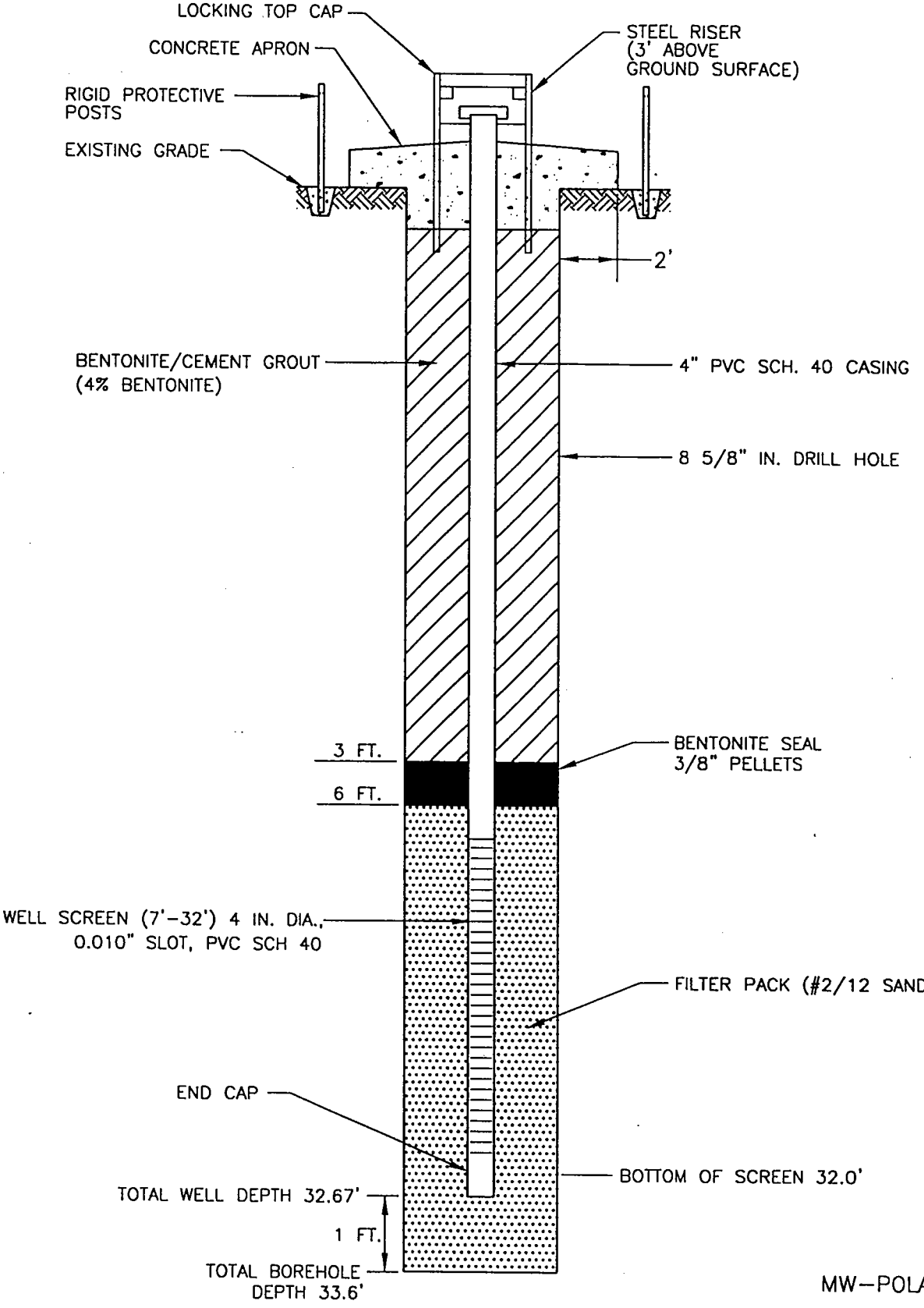
DRAWN BY	T.R.S.	CHECKED BY	CLE 12/1-97	FILE NAME & DISK NUMBER MPOLA121(HA25)
DATE	12-30-96	APPROVED BY	Jun 12/3-97	

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWN BY	CHECKED BY	DRAWING NUMBER
J.KYLE 6-3-97	APPROVED BY	762538-A196



NOT TO SCALE

MW-POLA-121

WELL CONSTRUCTION DIAGRAM
HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA
PREPARED FOR
USACE, SACRAMENTO DISTRICT

INTERNATIONAL TECHNOLOGY CORPORATION

POL-DWC